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10/700,281	11/03/2003	Larry Lee Schumacher	5854-00500	4501

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DAFFER MCDANIEL LLP
P.O. BOX 684908
AUSTIN, TX 78768

EXAMINER
TO, JENNIFER N

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/700,281	SCHUMACHER ET AL.
Office Action Summary	Examiner	Art Unit	
	JENNIFER N. TO	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 November 2008_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _10-16 and 21-24_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _10-16 and 21-24_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 10-16, and 21-24 are pending for examination. Claims 1-9, and 17-20

are canceled by applicant in the reply filed 11/20/2008.

2.   The disclosure is objected to because it contains an embedded hyperlink and/or

other form of browser-executable code (see specification, page 6, line 14). Applicant is

required to delete the embedded hyperlink and/or other form of browser-executable

code. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

4.   Claims 10-16, and 21-24 are rejected under 35 U.S.C. 112, second paragraph,

as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention.

  a.   The following terms lacks antecedent basis:

    i.   the token batch size – claim 16;

    ii.   the allowed queue – claim 23;

    iii.   the sub-step of reducing token batching – claim 24.

  b.   The claim language in the following claims is not clearly understood:

    i.   as per claim 10, it is uncertain what the relationship between each

    thread/process with the sending and the receiving ports. Lines 4-5, it is

uncertain how the first process, the second process, the queue, and the ports are connected (i.e. the queue is the middle man for the ports and the processes). Line 6, it is uncertain whether "a thread" referred here is thread of the first process, or the thread of the second process. Lines 7-8, it is uncertain what relationship between "determining if the blocked thread is sending or receiving data" with the step of "determining if a thread is blocked". Line 7, it is not clearly understood what is meant by "determining if a thread is blocked, waiting on another thread" (i.e. determining if a thread is blocked by determining if it is waiting on another thread). Lines 8-9, it is uncertain whether "the receiving/sending ports" referred here are the same as different from "the receiving/sending ports and the queue limit" as recited in lines 5-6. Lines 7-10, it is uncertain what relation between the blocked thread with "the receiving/sending ports".

ii.   as per claim 21, line 2, it is not clearly understood what is meant by a plurality of map components (i.e. thread, process, processors). Lines 2-3, it is uncertain what the relation between "a number of map components" and "a plurality of map components". Lines 3-4, it is not clearly understood what is meant by "each map component some map components comprising" (i.e. each map component of a plurality of map components comprising). Line 4, it is not clearly understood what is meant by "a composite component" (i.e. process, processor). Line 6, it is not clearly understood what is meant by "said linked data ports having a

queue" (i.e. how can a ports have a queue). Line 7, it is uncertain what

the relation between "a processing thread" with "the plurality of processes"

recited in line 5. Line 7, it is uncertain what relation between the

"respective process composite map component" with the "composite map

component" recited in lines 4-5. Line 8, it is uncertain whether the

"multiple processes" referred here is the same or different with the plurality

of processes" recited in line 5. Line 10, it is uncertain how the "detecting if

a deadlock condition does or will exist for a thread" perform (i.e. based on

what conditions or scenarios). Line 10, it is uncertain whether "a thread"

referred here is the thread recited in line 7 or the thread recited in line 9.

Lines 10-12, it is uncertain what the relation between "detecting and

correcting the deadlock" and the rest of the claim as recited in lines 1-9.

iii.   as claims 11-16, and 22-24, they are rejected for incorporating the

above errors from their respective parent claims by dependency.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 10-16, and 21-24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kakivaya et al. (hereafter Kakivaya) (U.S. Patent No. 7124405), and

in view of Tabloski et al. (hereafter Tabloski) (U.S. Patent No. 5999729).

4.   Kakivaya and Tabloski were cited in the previous office action.

5.   As per claim 10, Kakivaya teaches the invention substantially as claim including

a method of deadlock management in a multi-thread system (col. 1, lines 10-11; col. 2,

lines 5-9, 64 through col. 3, line 1) comprising:

        determining if a thread is blocked, waiting on another thread, and determining if

the blocked thread is sending data or receiving data (col. 4, lines 20-26; col. 16, line 66

through col. 17, line 7); and

        determining if a deadlock exists by building a wait graph of the blocked threads in

the system, and determining if the graph is cyclic, that is waiting on itself, indicating a

deadlock does exist (col. 10, lines 13-35; col. 10, lines 40-62).

6.   Kakivaya did not specifically teach parallel processing data management system

having sending and receiving ports for sending and receiving data tokens, wherein a

receiving port blocks if a data token is unavailable and a sending port blocks when a

queue limit is reached, and allocating at least one thread to a first process and at least

one thread to a second process, wherein the first and second processes are connected

through a queue via sending and receiving ports.

7.   However, Tabloski teaches parallel processing data management system having
sending and receiving ports for sending and receiving data tokens (abstract, lines 10-
14; col. 1, line 65 through col. 2, line 3), wherein a receiving port blocks if a data token
is unavailable and a sending port blocks when a queue limit is reached (abstract, lines
20-22), and allocating at least one thread to a first process and at least one thread to a
second process, wherein the first and second processes are connected through a
queue via sending and receiving ports (col. 6, lines 60-64; col. 7, lines 49-56).

8.   It would have been obvious to one of another skill in the art at the time the
invention was made to have to incorporated the teaching of system having sending and
receiving ports for sending and receiving data tokens, wherein a receiving port blocks if
a data token is unavailable and a sending port blocks when a queue limit is reached,
and allocating at least one thread to a first process and at least one thread to a second
process, wherein the first and second processes are connected through a queue via
sending and receiving ports as disclosed in Tabloski into Kakivaya's system because of
the systems are dealing with detecting a deadlock in a parallel processing system and
by incorporating the teaching of Kakivaya and Tabloski would simplifying development
and processing of programs for parallel processing system as suggested in Tabloski
(col. 1, lines 34-36).

9.   As per claim 11, Tabloski teaches blocking a receiving port when a limit on the
number of data tokens in the queue is reached (abstract, lines 20-22).

10.   As per claim 12, Tabloski teaches blocking a sending port when a limit on the
number of data tokens in the queue is reached (abstract, lines 20-22).

11.   As per claim 13, Kakivaya teaches building a wait graph with the blocked threads
and traversing the wait graph to determine if it is cyclic (col. 4, lines 5-18).

12.   As per claim 14, Tabloski teaches correcting the deadlock by allowing the limit of
data tokens on a queue to increase (col. 22, lines 38-45).

13.   As per Claim 15, Tabloski further discloses the limit of a queue associated with a
sending port is allowed to increase (col. 22, lines 38-45).

14.   As per Claim 16, Tabloski further discloses the token batch size of another queue
is decreased while the limit of the queue is increasing (col. 22, lines 35-50).

15.   As per claim 21, it is rejected for the same reason as claims 10 and 14 above. In
addition, Tabloski teaches providing a dataflow application comprising a plurality of map
components and data ports, a number of map components being linked between data
ports and each map component comprising one or more processes (abstract, lines 10-
14 & column 1, line 65 – column 2, line 3), allocating a processing thread to each
respective process (abstract, lines 18-21), and executing multiple processes in parallel
(abstract, lines 1-3).

16.   As per claims 22-24, they are rejected for the same reason as claims 13, and 15-
16 above.

Response to Arguments

17.   Applicant's arguments with respect to claims 10-16, and 21-24 have been
considered but are moot in view of the new ground(s) of rejection.

Conclusion

18.   The prior art made of record and not relied upon is considered pertinent to
applicant's disclosure (see attached PTO 892 form for details).

19.   Applicant's amendment necessitated the new ground(s) of rejection presented in
this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP
§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37
CFR 1.136(a).

        A shortened statutory period for reply to this final action is set to expire THREE
MONTHS from the mailing date of this action. In the event a first reply is filed within
TWO MONTHS of the mailing date of this final action and the advisory action is not
mailed until after the end of the THREE-MONTH shortened statutory period, then the
shortened statutory period will expire on the date the advisory action is mailed, and any
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

20.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JENNIFER N. TO whose telephone number is (571)272-

7212. The examiner can normally be reached on M-T 6AM- 3:30 PM, F 6AM- 2:30 PM.

21.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

22.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/   /Jennifer To/
Supervisory Patent Examiner, Art Unit 2195   Patent Examiner
                                                      AU 2195